

stiff, non-retractile pedicels, and six round the posterior end of the body. On the back two rows of papillæ, and

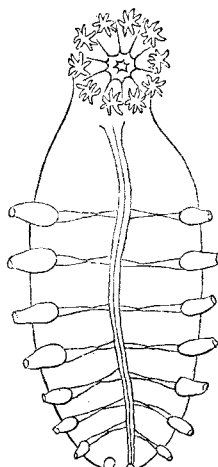
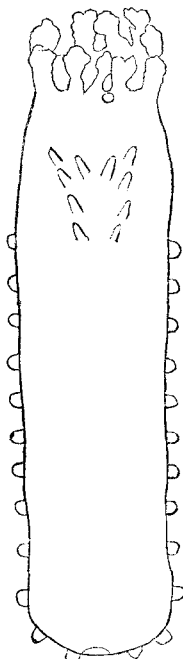


FIG. 10.—*Irpa abyssicola*, K. and D. Dorsal surface. FIG. 11.—*Kolga hyalina*, K. and D. Ventral surface.

two standing separate between them. Calcareous spicules in the skin.

L. abyssicola, K. and D.

Kolga, K. and D. (Fig. 11) (from the Norse mythology).

Body bilateral; oral disk furnished with ten tentacles, turned towards the ventral surface. On the anterior portion of the back there is a prominent collar furnished with papillæ, and right in front of it two openings, a genital opening and the opening of the sand canal. Pedicels on both sides of the body and round the posterior end. Sexes separate. No "respiratory tree."

K. hyalina, K. and D.

These are all abyssal forms, eight of the seventeen species having been dredged from depths of more than 2,000 fathoms. They are very extravagant in shape—the names which Dr. Théel has given them shows that their appearance suggests such stuff as dreams are made on—and they are of large size, some over a foot in length.

One group is very gelatinous, and of a rich purple colour; others are gelatinous, grey, and semi-transparent; while another series, and among these the most fantastic of the whole, are yellowish and have a test crustaceous with a thick layer of calcareous plates, often running out into strangely shaped processes. A peculiar little group from the Antarctic Sea are little more than a gelatinous membrane, covering an enormously distended intestine, filled with diatom ooze. From the number of species and individuals which came up in our scattered and infrequent hauls of the trawl, the *Elasmopoda* must form quite a prominent feature of the abyssal fauna.

C. WYVILLE THOMSON

NOTES

A HIGH and well-deserved compliment has been paid to the United States Signal Service, of whose services to meteorology our readers are so well aware. The German Government

recently addressed through the German Minister at Washington, a letter requesting to be exactly informed as to the processes by which the Signal Service Bureau so promptly collects at the War Department the meteorological reports from all parts of the United States—an extent of territory greater than Europe—and so rapidly drafts and publishes them upon the printed daily weather map. These maps are issued three hours after the records are read at the distant stations. When it is remembered that the request comes from a government noted for its skilled cartographers, and standing first in Europe, the value of the compliment will be appreciated. It is understood that the German Government proposes an advance in meteorological work. The information sought has been minutely prepared by the Chief Signal Officer, Gen. Myer, with the approval of the Secretary of War.

THE death is announced of Mr. Thomas Bell, F.R.S., F.L.S., &c., of the Wakes, Selborne, Hampshire, on Saturday, at the advanced age of eighty-seven. Mr. Bell had a large practice as a dentist, and his name was well known in the scientific world. He was for a long period Professor of Zoology in King's College, and his histories of "British Quadrupeds" and of "British Reptiles," though published more than forty years ago, are still much esteemed. When he was over eighty-four years old he brought out his edition of Gilbert White's "Natural History of Selborne." Mr Bell was Corresponding Member of several foreign scientific societies. About eighteen years ago he gave up practice and retired to The Wakes at Selborne, Gilbert White's house, which he purchased from the great-nieces of the naturalist. Here he collected every memorial he could find of White, and the house and grounds were ever open to the admirers of "The Selborne."

THE Paris Academy of Sciences has received information of the death of M. Zinin, the eminent chemist, of St. Petersburg. He was the discoverer of the production of aniline colours by hydro-carburets.

THE University of Königsberg lost towards the close of last month one of the oldest members of its professorial staff, in the person of Dr. Ludwig Moser, Professor of Physics. Long before photography had become a practical art, Dr. Moser had acquired considerable reputation by his systematic and successful experiments in this department. He was in his seventy-fifth year.

THE following epigram on Dr. Siemens's recent paper has been sent us as by "a well-known scientific man." It is entitled Electric Chlorophyll:—

"Quis vaterum vidit plantas sine sole virentes,
Germinat en semen Siementis lumine claro."

THE Ancient Monuments' Bill has been read a second time in the House of Lords and been referred to a Select Committee.

HER MAJESTY has been graciously pleased to command that the Agricultural College, Cirencester, be styled the "Royal Agricultural College."

M. MASCART, the head of the French Central Bureau of Meteorology, has sent out a circular to his several rural correspondents, with forms for the purpose of collecting information on a number of natural phenomena relating to animal and plant life.

It appears that the Berlin Municipal Corporation has granted to Dr. W. Siemens the concession of one electrical railway which will connect Wedding-Platz with Belle Alliance-Platz. The rails will be supported by iron columns, which will not be an obstruction for the circulation of carriages and passengers in the streets. There will be no intermediate station between the two termini.

ENGELMANN of Leipzig announces the appearance in April of a new botanical serial, *Botanische Jahrbücher für systematik Pflanzengeschichte und Pflanzengeographie*, edited by Prof. A. Engler of Kiel. The journal will appear at intervals of from three to six months, in numbers of from four to six sheets. The first part will contain papers by Oswald Heer, Alph. de Candolle, E. Warming, O. Beccari, and Prof. Engler.

THE first ordinary meeting of the Epping Forest and County of Essex Naturalists' Field Club was held at the head quarters, 3, St. John's Terrace, Buckhurst Hill, Essex, on February 28, the president, Mr. Raphael Meldola, F.R.A.S., F.C.S., &c., presiding. Nearly seventy Members were present. The minutes of the Foundation Meeting having been read and confirmed, the President proceeded to deliver an inaugural address on the objects and work of the club. He said their Society, in general terms, might be said to have for its scope the study of nature in the field. Although not quite two months old, it already numbered more than 160 original Members. It was unnecessary, he thought, for them to plead any excuse for their *raison d'être*, it only remained for them to show those who had so readily extended the hand of encouragement, by the future work of the Members, that the sympathy had not been given in vain. They now looked forward, he might add, with confidence to receiving from their Members substantial support in the way of contributions to their publications, exhibitions of specimens at their meetings, and the discussion of problems in natural science in that amicable spirit which was most conducive to the real advancement of knowledge. In forming a Society such as the Epping Forest Club, their primary object was, of course, the furthering of science; the annual addition of something, however humble, to the general stock of human knowledge. Their chief object—the advancement of natural science—would be best effected by the publication of *original papers*, notes, and discussions; but they must likewise bear in mind that science will also be indirectly promoted by mutual intercourse and instruction, and, above all, by fostering and educating the scientific faculty in their younger members. He impressed upon the members that their most useful work would first be the observation and recording of the phenomena of that district which they had fixed upon as the field for their studies. With this alone they had a large and pleasant task in hand. In the course of time, and as their society continued to increase—as it surely would if it only fulfilled the promises of its early youth—they should hope to establish permanent collections in a museum, and any contributions of specimens to form the nucleus of such a public collection would at any time be welcome. Mr. Meldola suggested that a "Museum Fund" be started for that purpose. He pointed out the obvious advantages of having in one building their collections, library and meeting room, and suggested that it would be best for the members to endeavour to furnish the museum as far as possible from specimens collected by themselves in the county. The secretary then read a paper communicated to the club by Mr. R. M. Christy, of Chignal, near Chelmsford, on the occurrence of the great bustard (*Otis tarda*, L.), and the rough-legged buzzard (*Buteo lagopus*), near Chelmsford, during the winter of 1879. The meeting then resolved itself into a *conversazione*.

PROF. BORLINETTO, of the University of Padua, suggested some time ago the employment of cardboard covered with a film of collodion in the construction of the electrophorus. The instrument yielded excellent results, the sparks obtained from it being sensibly longer than those derived from an ordinary electrophorus of resin and shellac of the same size. Collodion is an extremely electrical substance, and becomes negatively electrified when rubbed with all other known substances. An electrical paper was also employed by Schönbein in the construction of an electrical machine.

THE report of a committee of the Franklin Institute, which recently spent five days in examining the action of Irwin's steam injector and ejector, appears in the journal for February. They consider Mr. Irwin has contributed a valuable improvement in injectors, increasing their power of augmentation to above twice that of the pressure of steam used for practical working without waste, and about four times with waste at the overflow. It seems to be a general law that the lower the steam employed, the higher could the proportional augmentation of pressure be carried. Among the peculiarities of Irwin's apparatus is that of the water-supply pipe and overflow being set at an angle of 45° to the axis of the instrument; also the permitting of free entrance of atmospheric air at and through the overflow; both of them, it is claimed, increasing materially the power of augmentation.

PROF. THURY, of Geneva, contributes to the *Archives des Sciences* (February 15) a curious paper on the time required to make a survey of the heavens with different magnifying powers of telescope. Such estimates, he points out, do not admit of great exactness, but nevertheless are of interest with regard to forming a plan of observation, and also with a view to answering the question: What are the chances that an object of determinate visibility, existing in the heavens, should have hitherto remained unperceived? and what chances are there of discovering new objects with an instrument of given power?

A MELBOURNE paper states that arrangements are being made there to work a copper mine near Dotswood, Queensland, where an extensive and rich lode of copper is known to exist. The ore is described as being of the richest kind known, viz., virgin copper and red oxide, and specimens examined have yielded 58·2 per cent. of copper and 5 dwt. of gold and 4 oz. of silver per ton of ore.

THE students of the Institution of Civil Engineers have been recently invited to take part in a series of supplemental meetings of members of their body to take place on the under-mentioned dates, when the following papers will be read and discussed:—March 12—"Storage Reservoirs," by Walter Cradock Davies, Stud. Inst. C.E. March 19—"The Manufacture of Bessemer Steel Rails," by Horace Allen, Stud. Inst. C.E.—April 2—"The Construction of Brick and Concrete Egg-shaped Sewers," by Ernest van Putten, Stud. Inst. C.E. April 9—"Small Motive Power," by H. S. Hele Shaw, Stud. Inst. C.E. April 16—"Railway Tyres and Tyre Fastenings," by Robert Read, Stud. Inst. C.E. The chair will be taken at seven o'clock on each evening, and successively by Mr. Giles, M.P., Mr. C. Wm. Siemens, F.R.S., Mr. R. Rawlinson, C.B., Dr. Pole, F.R.S., and Mr. Berkley, Members of Council.

A DEPLORABLE accident has taken place at the Grenoble Lycée. The professor of chemistry was lecturing on salts of mercury, and had by his side a glass full of a mercurial solution. In a moment of distraction he emptied it, believing he was drinking a glass of *eau sucrée*. The unfortunate lecturer died almost immediately.

MERCURY was seen at Paris on May 10 and 11 with the naked eye, owing to the transparency of the atmosphere and the great elongation of the planet. It had the brightness of a 1st class star, and was of a yellowish colour. The observation was made by MM. Henry brothers, at the Paris Observatory.

ETNA is again tranquil, its summit is once more covered with snow, and an ascent is contemplated, with a view to examine the alterations caused in the crater by the recent eruptions.

WE have received the first number of the *Bulletin* of the Algerian Scientific Association, the object of which is to popularise and develop scientific studies in Algeria, and to facilitate in every possible way the work of its members. This first

number contains some papers worthy of attention, among others, "A Critical Study of the Fevers of Algiers," by Dr. Angele Murraud; "Considerations on the Herbaceous Plants of the Summer Flora of Algiers," by M. J. A. Ballandito; and a lecture on "The General Phenomena of Reproduction among Vegetables," by M. F. Trabut.

THE post of *astronome titulaire* to the Paris Observatory having been declared vacant, the Minister of Public Instruction has decided upon following for the first time the prescriptions of an old decree of 1852, declaring that the Minister should only have the faculty to appoint one of the persons whose name should have been inscribed on either of two lists, written one by the Academy of Sciences and the other by the Astronomical Board of the Observatory. The list of the Board has been sent to the Minister with the name of M. Perrigault in the first line and Leveau in the second. The Section of Astronomy has submitted to the Academy a list containing Perrigault in the first line and Leveau and Perrotin in the second. The Academy will vote at its next sitting on these conclusions.

THE additions to the Zoological Society's Gardens during the past week include a Grivet Monkey (*Cercopithecus griseo-viridis*) from North-East Africa, presented by Mr. H. E. Laver; a Common Marmoset (*Hapale jacchus*) from South-East Brazil, presented by Madame Sparagnapane; a Persian Gazelle (*Gazella subgutturosa*) from Persia, presented by Mr. W. Dunt; a Golden Eagle (*Aquila chrysaetos*), European, presented by the Viscount Hill; a Horrid Rattlesnake (*Crotalus horridus*) from Aracati, Brazil, presented by Mr. Karl J. Schmettan; a Red-fronted Lemur (*Lemur rufifrons*) from Madagascar, a Guilding's Amazon (*Chrysotis guildingi*) from St. Vincent, W.I., eight Golden Plovers (*Charadrius pluvialis*), European, purchased; four Wild Swine (*Sus scrofa*) born in the Gardens.

OUR ASTRONOMICAL COLUMN

MINOR PLANETS.—The circulars of the *Berliner astronomisches Jahrbuch* prove that Prof. Tietjen is using great exertion to keep pace in calculations with the rapid discoveries of small planets; the latest circular contains elements and an ephemeris of No. 212 detected at Pola on February 6. The actual number is now 214, the last having been discovered also by M. Palisa at Pola on March 1.

THE SOUTHERN COMET.—Approximate positions of the large comet first remarked in South Africa on February 1, deduced from observations at the Royal Observatory at the Cape on each evening from February 10-15 inclusive, were received from Mr. Gill by last mail. The right ascensions were given to minutes of time only, the corresponding north polar distances to minutes of arc, but the motion of the comet in R.A. being pretty rapid it has been possible to found elements upon the Cape places, which will afford an idea of the true orbit, and indeed which represent the observations on the six evenings as nearly as could be expected under the circumstances. The elements are as follow:—

Perihelion passage, 1880, January 26.4559 G.M.T.

Longitude of the perihelion	255° 47' 2"
" ascending node	332° 25' 0"
Inclination	46° 38' 6"
Logarithm of the perihelion distance	8.59917
Heliocentric motion—retrograde.	

This orbit represents the observed places with the following differences:—

	R.A.	N.P.D.
February 10	0° 0'	0° 0'
11	- 4' 7"	+ 0' 4"
12	+ 1' 6"	+ 0' 1"
13	+ 2' 4"	+ 1' 4"
14	+ 10' 7"	+ 1' 1"
15	0° 0'	0° 0'

Calculating for 8h. 30m. mean time at the Cape Observatory we

have the subjoined positions, during the period that the comet, so far at least as regards its lengthy train, appears to have attracted so much attention in the other hemisphere:—

	R.A.	N.P.D.	Distance from the Sun.	Earth.	Intensity of light.
Jan. 30 ...	314° 3'	113° 40'	0.237 ...	0.768 ...	30.3
Feb. 1 ...	320° 59'	116° 55'	0.322 ...	0.709 ...	19.2
3 ...	329° 2'	119° 42'	0.399 ...	0.671 ...	14.0
5 ...	337° 54'	121° 51'	0.469 ...	0.649 ...	10.8
7 ...	347° 12'	123° 13'	0.535 ...	0.641 ...	8.5
9 ...	356° 25'	123° 44'	0.597 ...	0.647 ...	6.7

The above orbit will barely suffice to indicate the comet's actual positions within narrow limits; for March 19, at 8 P.M., the computed right ascension is 4h. 16m., and the north polar distance 104°, which places the comet above our horizon after sunset, but the intensity of light has diminished to 0.2, which, with the presence of the moon, seems to allow but little chance of observations.

With the elements we have given the comet would be north of the ecliptic less than two days, or from about January 25d. 20h. to 27d. 17h. Greenwich time. The orbit telegraphed from Brazil, apparently on the authority of a note of M. Liais's, differs very widely except in the perihelion distance.

GEOLOGICAL NOTES

GEOLOGICAL SURVEY OF SAXONY.—This well-appointed and well-led body of geologists continues to produce a series of excellent maps, which are issued as chromolithographed sheets, at the price of 2s. Each sheet is accompanied by an explanatory pamphlet, price 1s., in which the geological structure of the ground is made clear to the reader. The contents of the pamphlet are conspicuously printed on the back of the cover. Eight of these sheets and pamphlets have recently been issued, embracing the sections of Colditz, Leisnig, Döbeln, Penig, Waldheim, Burkhardttsdorf, Marienberg, and Elterlein. The area embraced by these publications includes large tracts of gneiss, schist, and other azoic rocks, which are described in great detail in the text. There can be no doubt that this thorough investigation of the Archæan rocks of Saxony will be of great service in future discussions regarding the age and genesis of the crystalline schists.

GEOLOGICAL SURVEY OF INDIA.—Mr. Medlicott, superintendent of this survey, has issued his Annual Report for 1879, from which we learn that in the Peninsular area there were five parties in the field during the past year, while in the extra-peninsular area there were two parties. The map accompanying the report shows that a large area of the Carnatic has been recently mapped and published, and that a wide tract is in progress between Hyderabad and the Bay of Bengal. The maps and reports of another large district in the lower part of the Indus Valley were last year published, as well as several detached areas in the Peshawur and Kashmir regions. The areas completed by some of the surveyors are of wide extent. Thus Mr. Feddes completed the survey of some 1,900 square miles in continuation of his previous season's work, besides making preliminary traverses of adjoining territory. This large piece of ground is almost wholly occupied by eruptive igneous rocks. Mr. Hackett, however, succeeded in adding more than 10,000 square miles to his previous survey of the Arvali region. This region is described as a wide waste of sand with only scattered outcrops of rock. Mr. Medlicott makes in his report an important statement as to the nature and conditions of publication in the office under his charge. He points out that were the issue of the work of his subordinates postponed until it could be thoroughly tested and brought up to the best standard of the time, it would often be indefinitely postponed. He states that such postponement, previous to his appointment, had been the rule, and he cites the case of the description of the Rájmahál hills as an example, this work having actually been delayed for fifteen years, though even at last it is in no important respect better than it would have been had it appeared at once. He considers that the chief duty of the Geological Survey is to the general public, which requires, first of all, an intelligible map and description of areas hitherto geologically unknown. He claims that the least finished work of the Survey fulfils that duty, however imperfectly, and that on the whole it is better, even at the risk of publishing crude material, to give the results forth to the world than to withhold them for an indefinite period until